

REMARKS

The specification is objected to due to informalities. The claims are objected to due to informalities. Claims 1-5, 8, 15, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Ogino (US 5,803,566). Claims 6, 7, and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogino (US 5,803,566) in view of Childers et al (US Patent Application No. 2003/0184718).

1. Objection to the specification:

The specification is objected to because of several informalities. Appropriate correction is required.

Response:

The specification has been amended to correct these informalities. The applicant suspects that the majority of these errors were caused by problems with the electronic filing software. In addition, grammatical errors have also been corrected in paragraph [0025]. No new matter has been added through these corrections. Acceptance of the specification is respectfully requested.

2. Objection to the claims:

The claims are objected to because of several informalities. Appropriate correction is required.

Response:

The claims have been amended to correct these informalities. No new matter has been added through these corrections. Acceptance of the claims is respectfully requested.

3. Rejection of claims 1-5, 8, 15, and 16 under 35 U.S.C. 102(b):

5 Claims 1-5, 8, 15, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by Ogino (US 5,803,566) for reasons of record, as recited on pages 3-5 of the above-indicated Office action.

Response:

10 The applicant would like to point out the patentable differences between claims 1, 9, and 15 and the Ogino patent. Claims 1, 9, and 15 each contain limitations stating that the invisible-light reflector is installed at a reflecting position intersecting with the optical path outside the opening of the reflective housing. Claims 1 and 15 stated this originally, and claim 9 has been amended to contain this limitation. No new matter has been added by this amendment.

15 As shown in Figs.2-4 of the present invention, the invisible-light reflector 38 is installed outside of the reflective housing 34. Therefore, the reflecting position R, at which invisible-light in the optical path is reflected back, is located outside of the reflective housing 34.

20 However, Ogino (US 5,803,566) teaches in Figs.4-5 and in col.5, lines 60-62 a spherical container 23 filled with a liquid 24 and having a lamp 21 in the center of the spherical container 23. The spherical container 23 has open-ends 23a, 23b at opposite ends (col.6, lines 19-22). Although Ogino teaches an outer surface 27 that reflects

5 infrared light, the outer surface 27 of the spherical container 23 is not located outside of the spherical container 23, as is required in claims 1, 9, and 15 of the present invention. Therefore, Ogino does not anticipate the present invention according to claims 1, 9, and 15.

10 Furthermore, claims 1, 9, and 15 also recite the limitation that a normal of the invisible-light reflector and the optical path form a predetermined angle. Claims 3 and 10 provide further limitations stating that the angle is an acute angle not equal to zero degrees. These limitations are fully supported in the specification and in Fig.2 of the present invention.

15 On the other hand, Ogino teaches that the lamp 21 is placed in the center of the spherical container 23 (col.5, lines 60-62). Therefore, all light emitted from the lamp 21 will intersect the surface of the spherical container 23 at a normal angle of the surface. This means that the angle between the optical path and the normal of the surface will always be equal to zero degrees. Thus, Ogino does not teach or suggest that the angle between the optical path and the surface of the invisible-light-reflector should be an acute angle greater than zero degrees. Claims 3 and 20 10 are therefore further distinguished from the Ogino patent.

30 Claims 2-5, 8, and 16 are dependent on claims 1 and 15 and should be allowed if claims 1 and 15 are allowed. Reconsideration of claims 1-5, 8, 9, 15, and 16 is respectfully requested.

4. Rejection of claims 6, 7, and 9-14 under 35 U.S.C. 103(a):

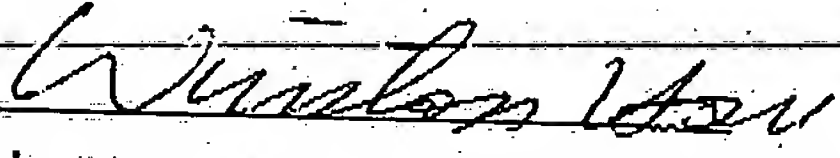
Claims 6, 7, and 9-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ogino (US 5,803,566) in view of Childers et al (US Patent Application No. 2003/0184718) for reasons of record, as recited on pages 5-8 of the above-indicated Office action.

Response:

As explained above, claim 9 is patentable over the Ogino patent due to the limitation of the invisible-light reflector being installed outside the opening of the elliptic reflective housing.

Claims 6, 7, and 10-14 are each dependent on their respective base claims and should be allowed if claims 1, 9, and 15 are allowed. Reconsideration of claims 6, 7, and 9-14 is requested.

Respectfully submitted,


Winston Hsu, Patent Agent No. 41,526
P.O. BOX 506
Merrifield, VA 22116
U.S.A.

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e-mail: winstonhsu@naipo.com.tw
(Please contact me by e-mail if you need a telephone communication and I will return your call promptly.)